



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D6101-003**  
**Job Sheet 173747**



*5054514-*  
*5054512*

**Part No:** D6101-003

**Job Qty:** 20 ea

**Part Name:** Saddle Billet, 7075



**Part Weight:** 0 lbs

**Status:** Scheduled

**Priority:** Medium

**Job Created:** 3/6/18

**Job Tracking No:**

**Due Date:** 3/29/18

**Created By:** Chantal Lavoie

**Type:** Stock

**Description:**

**Note:** DWG REV B

**Ship Via:**

### Bill of Materials

### Job Routing

| Op No | Operation  | Qty    | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off       |
|-------|------------|--------|------------|----------|-----------|---------|-----------------------|-----------|----------------|
|       |            |        |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |                |
| 100   | Purchasing | 20 pcs |            | 3/29/18  | 0.00      | 0.00    | Purchasing            |           | DAS 11         |
| 110   | Packaging  | 20 pcs |            | 3/29/18  | 0.00      | 0.00    | Packaging2            |           | 9BAS 11        |
| 120   | QC         | 20 pcs |            | 3/29/18  | 0.00      | 0.00    | QC6                   |           | 11 9-30        |
| 130   | Packaging  | 20 pcs |            | 3/29/18  | 0.00      | 0.00    | Packaging3-2          |           | DB 9-30        |
| 140   | QC21-SA    | 20 Ea  |            | 3/29/18  | 0.00      | 0.00    | QC21                  |           | 21 MAR 29 2018 |

Part Op 100 - Issue P/O: *034228* a) Description: Alluminum billet b) 7.875" x 6.250" x 2.00" thick c) Tolerance on all Descriptions: dimensions are +0.030"/-0.000" d) Grain direction along 7.875" length e) Material: 7075-T7351 (QQ-A-250/12) f) Material certification required

110 - Ensure material certification is attached

120 - Ensure Material certification comply to Dwg D6101

130 - LOCATION: MAT046

MAR 06 2018 *chB*

### Job BOM

| Part / Item | Component Name          | Quantity      | Operation      | Container |
|-------------|-------------------------|---------------|----------------|-----------|
| D6101-003P  | 7075-T7351 2X6.25X7.875 | 20 pcs (1 ea) | 100-Purchasing |           |

### Job Allocations

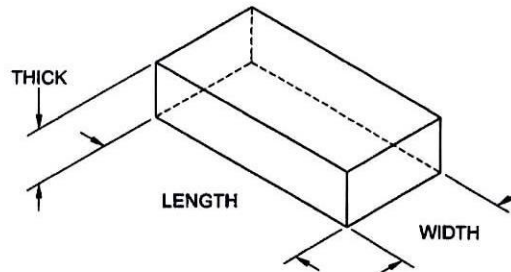
| Operation      | Component Part | Required | Inventory | Allocated |
|----------------|----------------|----------|-----------|-----------|
| 100-Purchasing | D6101-003P     | 20       | 0         | 0         |

### Part Specifications

Specifications could not be found.

Plex 3/6/18 2:18 PM dart.lavoie.chantal

## SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

**B** ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

| Part No.  | Alloy                    | Length | Width | Thick | Grain Direction    |
|-----------|--------------------------|--------|-------|-------|--------------------|
| D6101-001 | 7075-T7351 (QQ-A-250/12) | 6.000  | 6.250 | 2.000 | Along 6.000 Length |
| D6101-003 | 7075-T7351 (QQ-A-250/12) | 7.875  | 6.250 | 2.000 | Along 7.875 Length |
| D6101-005 | 7075-T7351 (QQ-A-250/12) | 5.000  | 8.250 | 2.500 | Along 5.000 Length |
| D6101-007 | 7075-T7351 (QQ-A-250/12) | 7.750  | 8.250 | 2.500 | Along 7.750 Length |
| D6101-009 | 7075-T7351 (QQ-A-250/12) | 8.700  | 8.250 | 2.500 | Along 8.700 Length |
| D6101-011 | 7075-T7351 (QQ-A-250/12) | 9.700  | 8.250 | 2.500 | Along 9.700 Length |
| D6101-013 | 7075-T7351 (QQ-A-250/12) | 10.100 | 8.250 | 2.500 | Along 10.10 Length |
| D6101-015 | 7075-T7351 (QQ-A-250/12) | 9.450  | 6.250 | 2.500 | Along 9.450 Length |
| D6101-017 | 7075-T7351 (QQ-A-250/12) | 6.350  | 6.250 | 2.250 | Along 6.350 Length |

**RELEASED**  
09/07/15/WP

|            |                                     |                                                                                                                                                                                                                                                                                           |              |
|------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| B          | ADDED D6101-015/-017, ADD ASTM B209 | RF                                                                                                                                                                                                                                                                                        | 09.04.23     |
| A          | NEW ISSUE                           | CP                                                                                                                                                                                                                                                                                        | 01.03.30     |
| REV.       | DESCRIPTION                         | BY                                                                                                                                                                                                                                                                                        | DATE         |
| DESIGN     | CP                                  | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                  |              |
| DRAWN      | RF                                  |                                                                                                                                                                                                                                                                                           |              |
| CHECKED    | <i>[Signature]</i>                  | DRAWING NO.                                                                                                                                                                                                                                                                               | REV. B       |
| MFG. APPR. | <i>[Signature]</i>                  | D6101                                                                                                                                                                                                                                                                                     | SHEET 1 OF 1 |
| APPROVED   | <i>[Signature]</i>                  | TITLE                                                                                                                                                                                                                                                                                     | SCALE        |
| DE APPR.   | <i>[Signature]</i>                  | SADDLE BILLET, 7075                                                                                                                                                                                                                                                                       | NTS          |
| DATE       | 09.04.23                            | <small>COPYRIGHT © 2001 BY DART AEROSPACE LTD<br/>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |              |



## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 06101-003P  
 DATE: MAR 23 2018

PO / BATCH NO.: 039228/5054512

MATERIAL CERT REC'D: yes  
 QUANTITY RECEIVED: 20 Pcs  
 QUANTITY INSPECTED: 20 Pcs  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.00  
 THICKNESS RECEIVED: 2.00  
 SHEET SIZE ORDERED: N/A  
 SHEET SIZE RECEIVED: N/A

| DESCRIPTION                                     | NCR<br>(Check Y/N)                 |                                    | COMMENTS               |
|-------------------------------------------------|------------------------------------|------------------------------------|------------------------|
| SURFACE DAMAGE                                  | Y                                  | <input checked="" type="radio"/> N |                        |
| CORRECT FINISH                                  | <input checked="" type="radio"/> Y | N                                  |                        |
| CORROSION                                       | Y                                  | <input checked="" type="radio"/> N |                        |
| CORRECT GRAIN DIRECTION                         | <input checked="" type="radio"/> Y | N                                  |                        |
| CORRECT MATERIAL PER M-DRAWING                  | <input checked="" type="radio"/> Y | N                                  | <u>AMS QQ-A-250/12</u> |
| CORRECT THICKNESS                               | <input checked="" type="radio"/> Y | N                                  |                        |
| PHOTO REQUIRED                                  | Y                                  | <input checked="" type="radio"/> N |                        |
| CORRECT REF # TO LINK CERT                      | <input checked="" type="radio"/> Y | N                                  | <u>Heat # 9401341</u>  |
| CORRECT MATERIAL IDENTIFICATION                 | <input checked="" type="radio"/> Y | N                                  |                        |
| CORRECT M# ON THE MATERIAL                      | <input checked="" type="radio"/> Y | N                                  |                        |
| DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF | Y                                  | <input checked="" type="radio"/> N |                        |
| DOES THIS REQUIRE AN EXTRUSION REPORT           | Y                                  | <input checked="" type="radio"/> N |                        |

| CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.<br>RECORD RESULTS BELOW |     |     |       |       |         |
|------------------------------------------------------------------------------------|-----|-----|-------|-------|---------|
|                                                                                    | HRC | HRB | DUR A | DUR D | WEBSTER |
| TYPE OF MATERIAL                                                                   |     |     |       |       |         |
| SIZE OF TEST SAMPLE                                                                |     |     |       |       |         |
| HARDNESS / DUROMETER READING                                                       |     |     |       |       |         |

*testers located in the Quality Office*

| QC 18 INSPECTION                      | ENGINEERING SIGNOFF (if required) |
|---------------------------------------|-----------------------------------|
| INSPECTED BY: <u>DAS</u><br><u>11</u> | SIGNED OFF BY: _____              |
| DATE: <u>9-8 MAR 23 2018</u>          | DATE: _____                       |

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

**Castle Metals®**

A. M. Castle &amp; Co.

PACKING SLIP/  
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3548088

|                                                                                                    |                         |                                                                                        |  |                                                                                         |  |                                                                                              |  |
|----------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
| <b>Ship From:</b><br>A. M. CASTLE & CO.<br>2150 ARGENTIA ROAD<br>MISSISSAUGA, ON L5N<br>2K7<br>CAN |                         | <b>Sold To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON K6A 1K7<br>CA |  | <b>Ship To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON<br>K6A 1K7 CAN |  | <b>Deliver To:</b><br>DART AEROSPACE LTD<br>1270 ABERDEEN<br>HAWKESBURY, ON<br>K6A 1K7<br>CA |  |
| <b>Date Shipped</b><br>22-MAR-18                                                                   | <b>F.O.B.</b><br>ORIGIN | <b>Freight Terms</b><br>Prepaid                                                        |  | <b>Carrier</b><br>MANITOULIN                                                            |  | <b>BOL No</b><br>3548088-2                                                                   |  |

|                         |                                       |
|-------------------------|---------------------------------------|
| <b>Shipment Details</b> | <b>Final Destination Branch - TOR</b> |
|-------------------------|---------------------------------------|

|                                   |                     |                                                      |                                                                                                                                                                                                                                                                                   |                                 |
|-----------------------------------|---------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>Order No</b><br>5068626        | <b>Line No</b><br>1 | <b>Item No</b><br>752237.MO                          | <b>Description</b><br>2.0000.PL.7075.T7351.ALUMINUM.USI 48.5000.144.5000<br>CUT RECTANGLE TO 6.25 IN ( + .0310/- .0000 IN (GRAIN TO RUN<br>ALONG 7.875")) X 7.875 IN ( + .0310/- .0000 IN (GRAIN TO RUN<br>ALONG 7.875")) - ALUMINUM PLATE SAW SPECIFICATIONS:<br>AMS-QQ-A-250/12 |                                 |
| <b>Purchase Order No</b><br>39228 |                     | <b>Part Number</b><br>YOUR ITEM NUMBER:<br>D6101-003 | <b>Ordered Qty</b><br>20.00 PCS                                                                                                                                                                                                                                                   | <b>Invoice Qty</b><br>20.00 PCS |

|                |                                                                                                                                                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Details</b> | ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY<br>ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S<br>Email P/s and certs to: clavoie@dartaero.com<br>END USER: DART AEROSPACE<br>END USE: COMMERCIAL AIRCRAFT PARTS |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                  |                                                        |                                                                                                           |                |                  |                   |                    |                                     |
|----------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------|------------------|-------------------|--------------------|-------------------------------------|
| <b>Delivery No.</b><br>121682737 | <b>Mill/Source</b><br>CONSTELLUM<br>ROLLED<br>PRODUCTS | <b>Heat Number</b><br> | <b>Mech Id</b> | <b>PCS</b><br>20 | <b>Width (IN)</b> | <b>Length (IN)</b> | <b>Shipped Qty(LBS)</b><br>203.2169 |
|----------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------|------------------|-------------------|--------------------|-------------------------------------|

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A. M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned.

Date Printed: 22-MAR-2018 03:26:41 PM

62214042



**Castle Metals<sup>®</sup>**

A. M. Castle & Co.

PACKING SLIP/  
CERTIFICATE OF CONFORMANCE

Page 2 of 2

For Credit:  
Reviewed by Authorized Castle Metals Representative

Date:

Name:

MAR 22 2018







Constellium Rolled Products  
Ravenswood, LLC

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A M CASTLE & CO.  
14001 ORANGE AVE.  
PARAMOUNT CA  
90723  
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A M CASTLE  
1420 KENSINGTON ROAD, SUITE 220  
OAK BROOK IL  
60523  
US

|                                                  |      |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |
|--------------------------------------------------|------|-------------------------|---------------------------------|----------------------------------|------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--|---------|--|
| A M CASTLE                                       |      | 110626796               |                                 | 4776                             |                                    | INCLUSION                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Serial:20180216-0110626796 |  | Pg 1cf3 |  |
| CUSTOMER PURCHASE ORDER NO. & ITEM<br>453762     |      |                         |                                 |                                  |                                    | Constellium ORDER NO.<br>232835 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |
| ALLOY<br>7075                                    | CLAD | TEMPER<br>T7351         | GAUGE<br>2.00000 in<br>50.80 mm | WIDTH<br>48.50000 in<br>1,232 mm | LENGTH<br>144.50000 in<br>3,670 mm |                                 | <b>CERTIFICATION</b><br>Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination.<br>Constellium Rolled Products Ravenswood, LLC<br>859 Century Road<br>P.O. BOX 68<br>RAVENSWOOD, WV 26164 USA<br><br><br>Dave Dunbarger - Laboratory Manager |                            |  |         |  |
| ITEM ORDERED<br>SPEC PLATE, SAWED<br>MILL FINISH |      |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |
| CUSTOMER SPECIFICATION<br>AMS 4076J              |      |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |
| PART NUMBER<br>752237                            |      | B/L NUMBER<br>94990     |                                 | DATE SHIPPED<br>02/16/2018       |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |
| WT. SHIPPED<br>8560.000 LB                       |      | NO. OF PIECES<br>000006 |                                 | GOVT. CONTRACT NO.               |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                            |  |         |  |

ALL LOTS ON THIS CERTIFICATION ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:

ASTM B594 REV 13 2013 100% SONIC W/ 0.125" DEADZONE Class A  
AMS QQ-A-250/12A  
AMS STD-2154A 2012 TYPE1 CLASS A 100% SONIC MINUS DEADZONE  
ASTM B209-14  
BSS-7055B 2013 CLASS A 100% SONIC TESTED MINUS DEADZONE  
CMMP025 REV U  
CSTI006 REV E 2011 CLASS A 100% SONIC MINUS DEADZONE  
DPS 4.713 REV AK 2012 CLASS A 100% SONIC MINUS DEADZONE  
GAMPS 9101 REV E 2006 CLASS A 100% SONIC MINUS DEADZONE  
MMS 159T  
PS 21211P 2010 CLASS A 100% SONIC MINUS DEADZONE

Load Details

| Package    | Net Lbs   | Kg      | Lot     | Piece | Serial | Parent Lot |
|------------|-----------|---------|---------|-------|--------|------------|
| 1001647267 | 1,430.000 | 648.637 | 9401341 | 03    |        |            |
| 1001647267 | 1,430.000 | 648.637 | 9401341 | 04    |        |            |
| 1001713337 | 1,425.000 | 646.369 | 9412314 | 01    |        |            |
| 1001713337 | 1,425.000 | 646.369 | 9412314 | 02    |        |            |
| 1001713338 | 1,425.000 | 646.369 | 9412314 | 03    |        |            |
| 1001713338 | 1,425.000 | 646.369 | 9412314 | 04    |        |            |

Lot: 9401341 (See test results below)

Tensile - Room Temperature (US)

| Direction | Tests | Ultimate (KSI) |      | Yield (KSI) |      | Elongation (%) |      | Report |
|-----------|-------|----------------|------|-------------|------|----------------|------|--------|
|           |       | Min            | Max  | Min         | Max  | Min            | Max  |        |
| LT        | 02    | 75.3           | 75.6 | 64.4        | 64.7 | 12.5           | 12.5 |        |





# Constellium

**naacap**  
Materials Testing Laboratory

Constellium Rolled Products  
Ravenswood, LLC

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A M CASTLE & CO.  
14001 ORANGE AVE.  
PARAMOUNT CA  
90723  
US

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A M CASTLE  
1420 KENSINGTON ROAD, SUITE 220  
OAK BROOK IL  
60523  
US

A M CASTLE 110626756 4776 INCLUSION Serial:20180216-0110626796 Pg 2of3

CUSTOMER PURCHASE ORDER NO. & ITEM  
453762

Constellium ORDER NO.  
232835

|               |      |                 |                                 |                                  |                                    |
|---------------|------|-----------------|---------------------------------|----------------------------------|------------------------------------|
| ALLOY<br>7075 | CLAD | TEMPER<br>T7351 | GAUGE<br>2.00000 in<br>50.80 mm | WIDTH<br>48.50000 in<br>1,232 mm | LENGTH<br>144.50000 in<br>3,670 mm |
|---------------|------|-----------------|---------------------------------|----------------------------------|------------------------------------|

ITEM ORDERED  
SPEC PLATE, SAWED  
MILL FINISH

CUSTOMER SPECIFICATION  
AMS 4078J

|                       |                     |                            |
|-----------------------|---------------------|----------------------------|
| PART NUMBER<br>752237 | B/L NUMBER<br>94990 | DATE SHIPPED<br>02/16/2018 |
|-----------------------|---------------------|----------------------------|

|                            |                         |                    |
|----------------------------|-------------------------|--------------------|
| WT. SHIPPED<br>8560.000 LB | NO. OF PIECES<br>000006 | GOVT. CONTRACT NO. |
|----------------------------|-------------------------|--------------------|

## CERTIFICATION

"Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination."  
Constellium Rolled Products Ravenswood, LLC  
859 Century Road  
P.O. BOX 68  
RAVENSWOOD, WV 26164 USA

Dave Dunbarger - Laboratory Manager

## Tensile - Room Temperature (SI)

|           |       | Ultimate (N/MM2) |     | Yield (N/MM2) |     | Elongation (%) |      | Report |
|-----------|-------|------------------|-----|---------------|-----|----------------|------|--------|
| Direction | Tests | Min              | Max | Min           | Max | Min            | Max  |        |
| LT        | 02    | 519              | 521 | 444           | 446 | 12.5           | 12.5 |        |

Conductivity % IACS MIN 39.2 MAX 39.7 % MS/M MIN 22.7 MAX 23.0

## Chemistry (Actual)

|      | SI   | FE   | CU   | MN   | MG   | CR   | ZN   | TI   | ZR   |
|------|------|------|------|------|------|------|------|------|------|
| Core | 0.05 | 0.13 | 1.47 | 0.02 | 2.76 | 0.19 | 5.70 | 0.02 | 0.00 |

OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER

All material contained in this lot was cast and manufactured in the USA

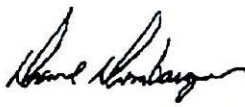
Lot: 9412314 (See test results below)

## Tensile - Room Temperature (US)

|           |       | Ultimate (KSI) |      | Yield (KSI) |      | Elongation (%) |      | Report |
|-----------|-------|----------------|------|-------------|------|----------------|------|--------|
| Direction | Tests | Min            | Max  | Min         | Max  | Min            | Max  |        |
| LT        | 02    | 73.9           | 74.6 | 63.2        | 63.8 | 12.0           | 12.5 |        |



**Constellium****naacap**  
Materials Testing LaboratoryConstellium Rolled Products  
Ravenswood, LLCS  
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OA M CASTLE & CO.  
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60523  
US

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|---------------------------------|----------------------------------|------------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------|---------|--|
| A M CASTLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       | 110626796               |                                 | 4776                             |                                    | INCLUSION                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Serial:20180216-0110626796 |      | Pg 3of3 |  |
| CUSTOMER PURCHASE ORDER NO. & ITEM<br>453762                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                         |                                 |                                  |                                    | Constellium ORDER NO.<br>232835 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| ALLOY<br>7075                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CLAD  | TEMPER<br>T7351         | GAUGE<br>2.00000 in<br>50.80 mm | WIDTH<br>48.50000 in<br>1,232 mm | LENGTH<br>144.50000 in<br>3,670 mm |                                 | <b>CERTIFICATION</b><br>"Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination."<br>Constellium Rolled Products Ravenswood, LLC<br>859 Century Road<br>P.O. BOX 68<br>RAVENSWOOD, WV 26164 USA<br><br><br>Dave Dunbarger - Laboratory Manager |                            |      |         |  |
| ITEM ORDERED<br>SPEC PLATE, SAWED<br>MILL FINISH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| CUSTOMER SPECIFICATION<br>AMS 4078J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| PART NUMBER<br>752237                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | B/L NUMBER<br>94990     |                                 | DATE SHIPPED<br>02/16/2018       |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| WT. SHIPPED<br>8560.000 LB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       | NO. OF PIECES<br>000006 |                                 | GOVT. CONTRACT NO.               |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| <b>Tensile - Room Temperature (SI)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Ultimate (N/MM2)        |                                 | Yield (N/MM2)                    |                                    | Elongation (%)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Report                     |      |         |  |
| Direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Tests | Min                     | Max                             | Min                              | Max                                | Min                             | Max                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |      |         |  |
| LT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 02    | 510                     | 514                             | 436                              | 440                                | 12.0                            | 12.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                            |      |         |  |
| <b>Conductivity</b> % IACS MIN 40.0 MAX 40.1 % MS/M MIN 23.2 MAX 23.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| <b>Chemistry (Actual)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SI    | FE                      | CU                              | MN                               | MG                                 | CR                              | ZN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TI                         | ZR   |         |  |
| Core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.06  | 0.13                    | 1.45                            | 0.05                             | 2.58                               | 0.21                            | 5.63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.04                       | 0.00 |         |  |
| OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| All material contained in this lot was cast and manufactured in the USA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| QUALITY TEXTS:<br>AMC CA-15413A R 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| THIS TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY OR AUTHORIZED QUALITY DELEGATE. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW.<br>CHEMISTRY BY OES: ARKSPARK<br>CHEMISTRIES REPORTED IN PERCENTAGE BY WEIGHT<br>WHEN FRACTURE TOUGHNESS TEST REQUIRED, TESTED PER ASTM E399<br>WHEN TENSILE TEST REQUIRED, TESTED PER ASTM E8: B557<br>DUNS Number: 090570149; CAGE Code: 1YWL9<br>Mercury is not a normal contaminant in aluminum alloys and neither mercury nor any of its compounds were utilized in the manufacture of our product.<br>"END OF CERTIFICATION" |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |
| P-860-155D REVISED: 01 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                         |                                 |                                  |                                    |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |      |         |  |